What is claimed is:

1. A fuel cell comprising a membrane electrode assembly and separators for sandwiching said membrane electrode assembly, said membrane electrode assembly including a pair of electrodes and an electrolyte membrane interposed between said electrodes, said electrodes each including an electrode catalyst layer in contact with said electrolyte membrane and a diffusion member in contact with said electrode catalyst layer,

wherein said diffusion member includes a foamed member made of metal material, and a resinous member in said foamed member.

2. A fuel cell according to claim 1, wherein said resinous member comprises resinous flow field walls for forming a reactant gas flow field in said foamed member, and a reactant gas flow through said reactant gas flow field along said electrode.

3. A fuel cell according to claim 2, wherein said resinous flow field walls extend from opposite ends of said electrode alternately, and said reactant gas flow field comprises a passage extending in a serpentine pattern.

4. A fuel cell according to claim 2, wherein said resinous flow field walls are formed by impregnating said

foamed member with resin.

5. A fuel cell according to claim 1, wherein said resinous member comprises resinous flow field walls for forming a reactant gas passage, and a reactant gas flows through said reactant gas passage in a stacking direction of said fuel cell.

6. A fuel cell according to claim 5, wherein said resinous flow field walls are formed by impregnating said foamed member with resin.

7. A fuel cell according to claim 1, wherein said resinous member comprises a resinous seal to form a reactant gas passage in said resinous seal, and a reactant gas flows through said reactant gas passage in a stacking direction of said fuel cell.

8. A fuel cell according to claim 7, wherein said resinous seal is formed by impregnating said foamed member with resin.

9. A fuel cell according to claim 1, wherein said resinous member comprises resinous supports for supporting a load applied to said fuel cell in a stacking direction of said fuel cell.

10. A fuel cell according to claim 9, wherein said resinous supports are formed in said foamed member, and spaced by a predetermine distance from a surface of said electrode catalyst layer facing said foamed member.

11. A fuel cell according to claim 9, wherein said resinous supports provided on one side of said electrolyte membrane and said resinous supports provided on the other side of said electrolyte membrane are in alignment with each other in said stacking direction.

12. A fuel cell according to claim 11, wherein a plurality of said fuel cells are stacked to form a fuel cell stack, and said resinous supports in each of said fuel cells are in alignment with each other in said stacking direction.

13. A fuel cell according to claim 9, wherein said resinous supports are formed by impregnating said foamed member with resin.

14. A fuel cell according to claim 9, wherein a metal stopper is interposed between said resinous supports, and said resinous supports are formed by impregnating said foamed member with resin.

15. A fuel cell according to claim 9, wherein said resinous supports are planar plates embedded in said foamed

member, and formed by impregnation.